IN THE CLAIMS

1. (Currently amended) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

filling the mold with a ceramic precursor; and

heating the ceramic precursor under a moisture-free atmosphere to produce a structure ~~consisting essentially~~ comprising of a ceramic, the structure having a Young's modulus that does not change more than 10% upon heating to 1400 °C in an inert atmosphere.

2. (Previously presented) The method of claim 1, wherein the ceramic precursor comprises at least two different elements.

3. (Previously presented) The method of claim 2, wherein the at least two different elements are selected from a group consisting of carbon, nitrogen, boron, silicon, phosphorus, aluminum and hydrogen.

4. (Previously presented) The method of claim 1, wherein the ceramic precursor comprises at least three different elements.

5. (Canceled)

6. (Previously presented). The method of claim 1, wherein each element of the ceramic structure is derived from the ceramic precursor.

7. (Previously presented). The method of claim 1, wherein the step of heating is performed under an inert atmosphere.

8. (Canceled)

9. (Original) The method of claim 1, wherein prior to the step of filling, the ceramic precursor is prepared to have sufficient viscosity to completely fill the mold.

10. (Original) The method of claim 9, wherein the viscosity of the ceramic precursor is adjusted to have a value less than about 500 cm^2/s.

11. (Original) The method of claim 1, wherein prior to the step of filling, the mold is treated such that it is inert with respect to reaction with the ceramic precursor and any subsequent products resulting from the ceramic precursor.

12. (Original) The method of claim 11, wherein the step of treating the mold comprises reacting the mold with an agent selected from the group consisting of alkylating, silylating, fluoroalkylating, or alkylsilylating agent.

13. (Original) The method of claim 1, wherein the step of filling comprises positioning a surface of the mold against a surface of a substrate to create a cavity which the ceramic precursor fills.

14. (Original) The method of claim 13, wherein the substrate is selected from the group consisting of silicon, silicon dioxide, silicon nitride, and any substrate with a smooth metallic surface.

15. (Previously presented) The method of claim 13, further comprising treating the substrate surface to render the substrate inert with respect to reaction with the ceramic precursor and any subsequent products resulting from the ceramic precursor.

16. (Original) The method of claim 15, wherein the step of treating comprises silanization.

17. (Original) The method of claim 1, wherein the step of filling comprises allowing the

ceramic precursor to enter a volume of lower pressure.

18. (Original) The method of claim 1, wherein the step of filling comprises allowing the ceramic precursor to enter a volume by means of capillary action.

19. (Original) The method of claim 1, further comprising the step of curing the ceramic precursor in the mold.

20. (Original) The method of claim 19, wherein the ceramic precursor is cured chemically.

21. (Original) The method of claim 19, wherein the ceramic precursor is cured thermally.

22. (Original) The method of claim 19, wherein the ceramic precursor is cured in the mold at a temperature of at least 100 °C.

23. (Original) The method of claim 19, wherein the ceramic precursor is cured in the mold under an inert atmosphere.

24. (Original) The method of claim 19, wherein the precursor is cured in the mold under a moisture-free atmosphere.

25. (Original) The method of claim 1, further comprising removing the mold from a product formed from the ceramic precursor.

26. (Original) The method of claim 25, wherein the step of removing the mold comprises physically removing the mold.

27. (Original) The method of claim 25, wherein the step of removing the mold comprises dissolving the mold.

28. (Original) The method of claim 27, wherein the step of dissolving comprises dissolving the mold in a solution containing fluoride anions.

29. (Original) The method of claim 28, wherein the solution contains tetrabutylammonium fluoride.

30. (Original) The method of claim 25, wherein the product comprises a cured ceramic precursor and after removing the mold, the method further comprises heating the cured ceramic precursor to a temperature of at least 1000 °C to produce a ceramic.

31. (Original) The method of claim 25, further comprising transferring the product to a substrate selected from the group consisting of silicon, silicon dioxide, silicon nitride, and metal.

32. (Original) The method of claim 1, wherein the ceramic precursor is a single precursor.

33. (Original) The method of claim 1, wherein the ceramic precursor comprises a polymer.

34. (Original) The method of claim 1, wherein the ceramic precursor comprises an oligomer.

35. (Original) The method of claim 1, wherein the mold exhibits elastomeric properties.

36. (Original) The method of claim 35, wherein the mold comprises polydialkylsiloxane material.

37. (Original) The method of claim 1, wherein the step of filling the mold is performed under an inert atmosphere.

38. (Original) The method of claim 1, wherein the step of filling the mold is performed under a

moisture-free atmosphere.

39-49. (Canceled)

50. (Original) A method comprising:
providing a mold;
silanizing the mold; and
filling the mold with a ceramic precursor.

51. (Canceled)

52. (Previously presented) A method comprising:

providing a silanized mold having at least one component with at least one dimension less than 100 μm;

providing a ceramic precursor having sufficient viscosity to completely fill the mold, wherein the viscosity of the ceramic precursor is adjusted to have a value of less than about 500 cm^2/s; and

thereafter, filling the mold with the ceramic precursor.

53. (Previously presented) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

reacting the mold with an agent selected from the group consisting of an alkylating, silylating, fluoroalkylating, or alkylsilylating agent, such that the mold is inert with respect to reaction with a ceramic precursor and any subsequent products resulting from the ceramic precursor; and

thereafter, filling the mold with the ceramic precursor.

54. (Previously presented) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

positioning a surface of the mold against a surface of a substrate to create a cavity which a ceramic precursor fills; and

treating the substrate surface to render the substrate inert with respect to reaction with the ceramic precursor and any subsequent products resulting from the ceramic precursor.

55. (Previously presented) A method comprising:

providing a silanized mold having at least one component with at least one dimension less than 100 μm; and

allowing a ceramic precursor to enter a volume of lower pressure in the mold.

56. (Cancelled)

57. (Previously presented) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

filling the mold with a ceramic precursor; and

curing the ceramic precursor in the mold under a moisture-free atmosphere.

58. Previously presented) A method comprising:

providing a mold having at least one component with at least one dimension less than 100 μm;

filling the mold with a ceramic precursor; and

dissolving the mold in a solution containing fluoride anions.

59. (Currently amended) A method comprising:

providing an elastomeric mold comprising polydialkylsiloxane material having at least one component with at least one dimension less than 100 μm; and

filling the mold with a ceramic precursor; and

heating the ceramic precursor to produce a structure ~~consisting essentially~~ comprising of a ceramic, the structure having a Young's modulus that does not change more than 10% upon heating to 1400 °C in an inert atmosphere.